FIG. 1

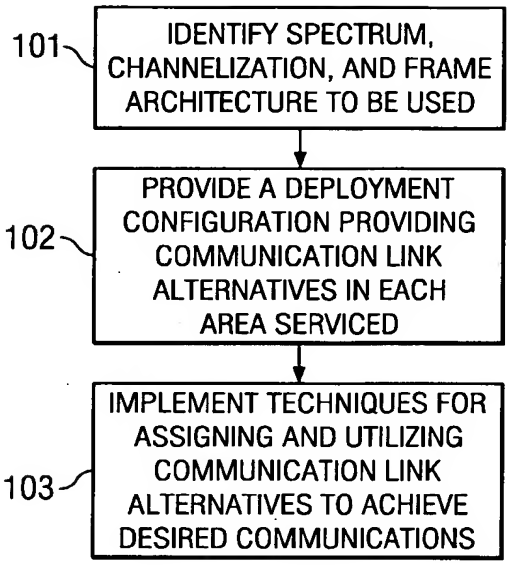


FIG. 3

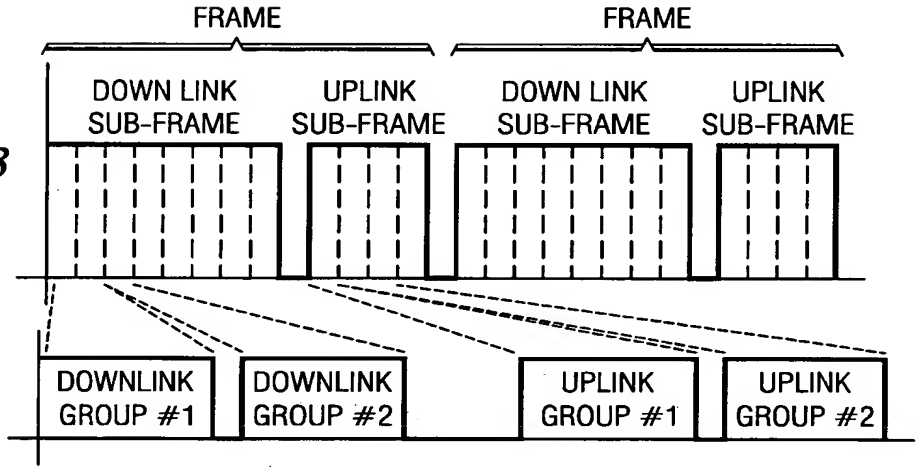


FIG. 4A

410

2	2	6	6	6	2	6	0-2312	4
FRAME CONTROL	DURATION /ID	ADDRESS 1	ADDRESS 2	ADDRESS 3	SEQUENCE CONTROL	ADDRESS 4	FRAME BODY	FCS

FIG. 4B

420

2	2	6	0-2047	4
FRAME CONTROL	DURATION /ID	ADDRESS 1	802.16 MAC PDU (802.16 MAC HEADER+OPTIONAL SUB-HEADERS+PAYLOAD)	FCS

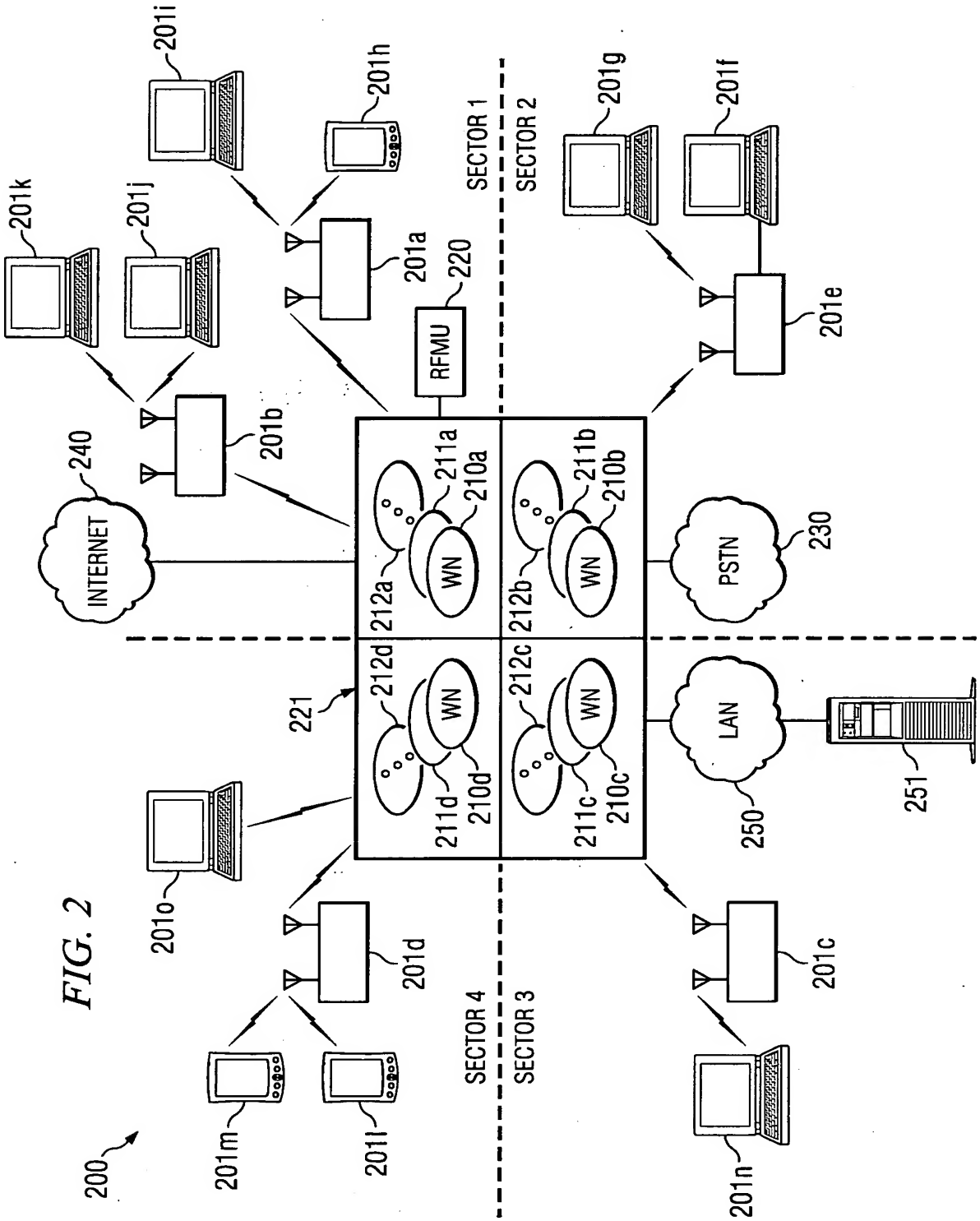

200
201i
201h
201k
201j
201a
220
RFMU
SECTOR 1
SECTOR 2
201g
201f
201e
240
INTERNET
201b
211a
210a
212a
WN
212b
211b
210b
230
PSTN
221
212d
211d
210d
212c
211c
210c
LAN
250
251
201o
201d
SECTOR 4
SECTOR 3
201c
201m
201l
201n

FIG. 2

FIG. 5

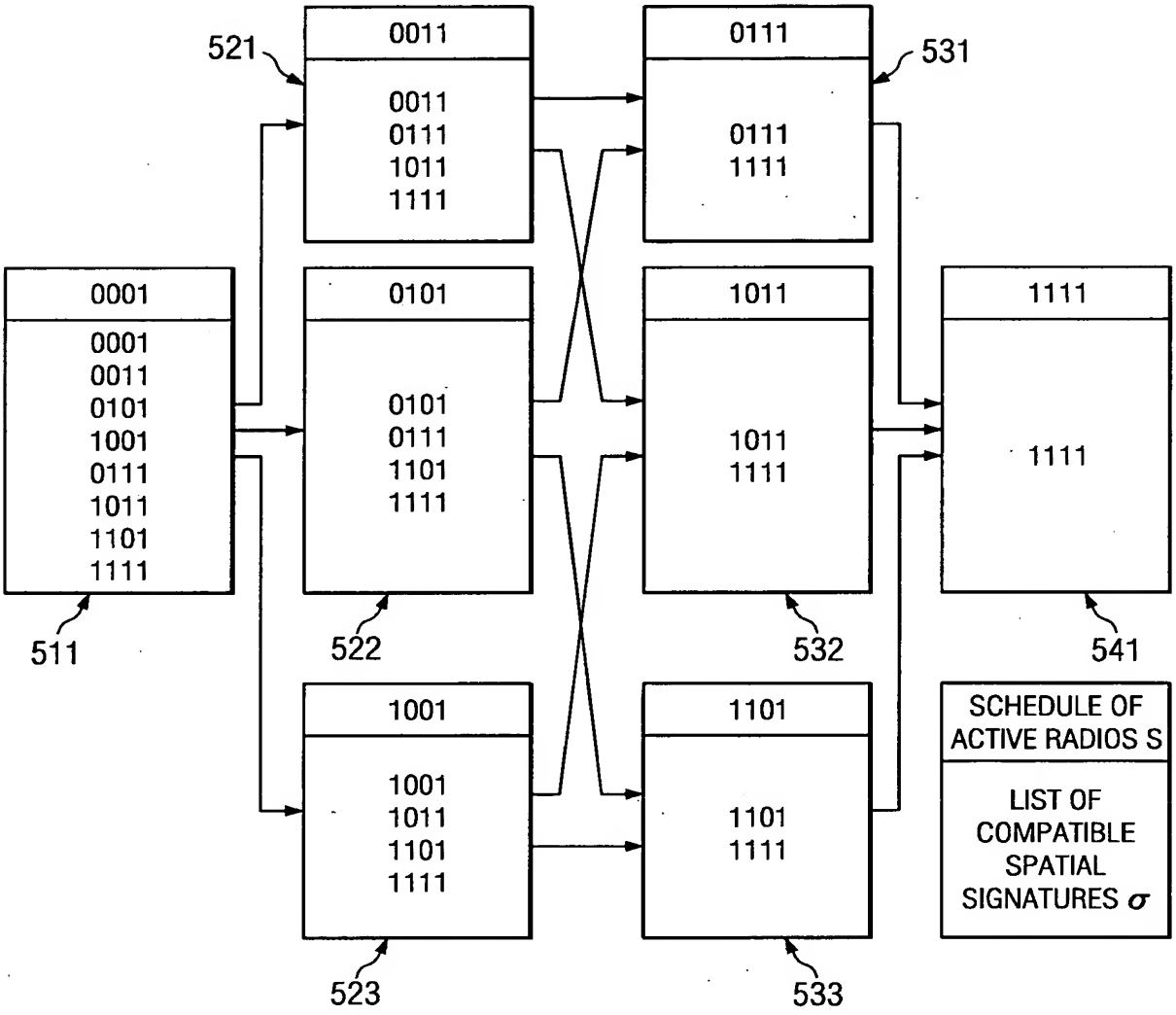

0001
0001
0011
0101
1001
0111
1011
1101
1111
511
0011
0011
0111
1011
1111
521
0101
0101
0111
1101
1111
522
1001
1001
1011
1101
1111
523
0111
0111
1111
531
1011
1011
1111
532
1101
1101
1111
533
1111
1111
541
SCHEDULE OF ACTIVE RADIOS S
LIST OF COMPATIBLE SPATIAL SIGNATURES σ

FIG. 6

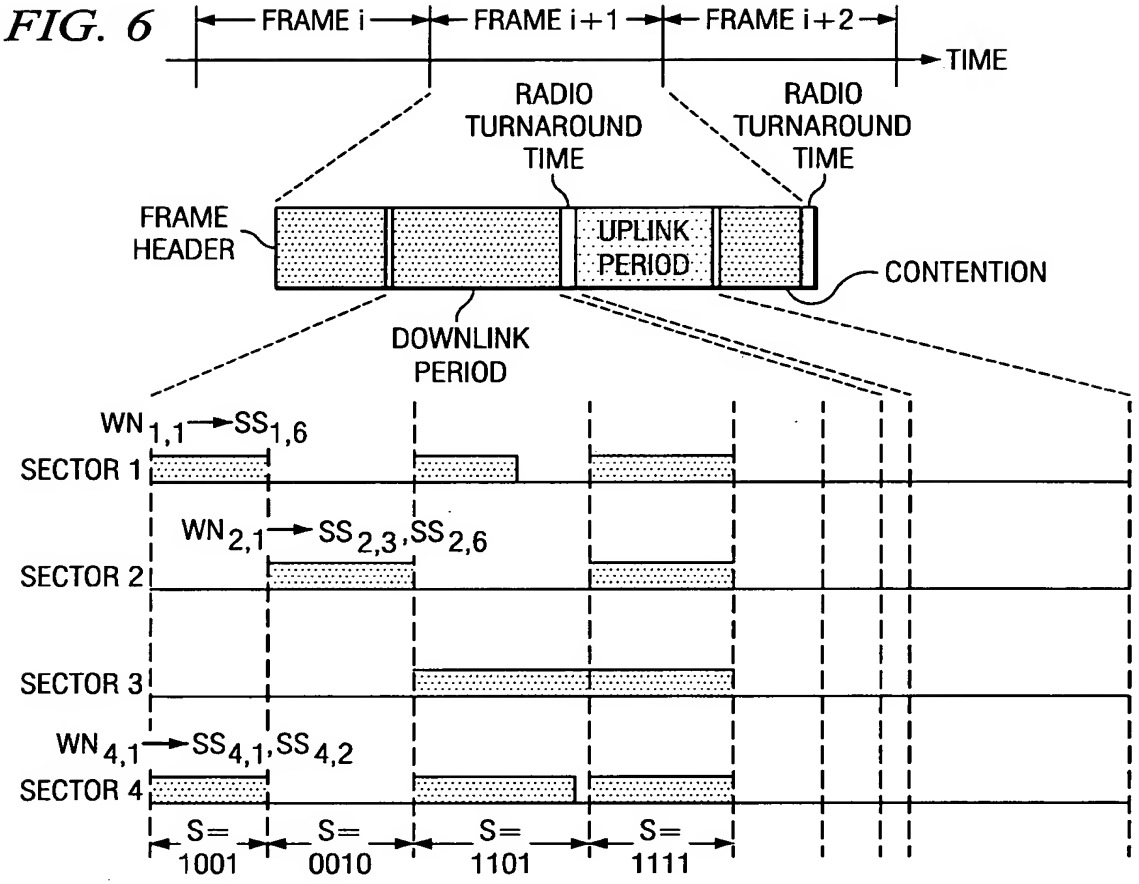
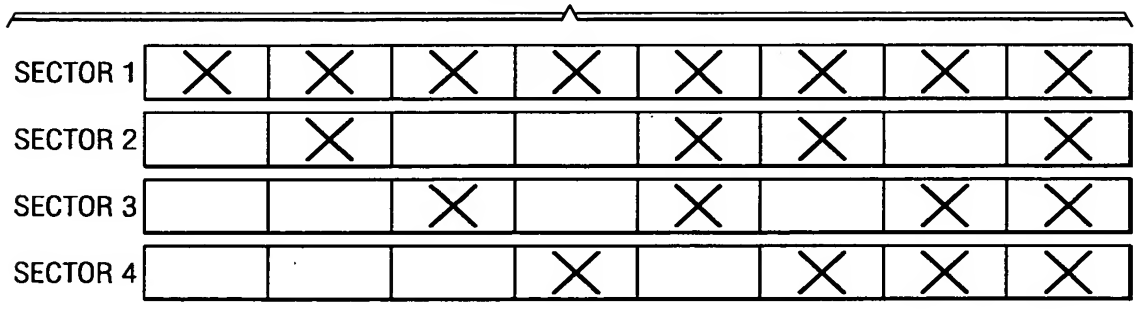

FRAME i
FRAME i+1
FRAME i+2
TIME
RADIO TURNAROUND TIME
RADIO TURNAROUND TIME
FRAME HEADER
UPLINK PERIOD
CONTENTION
DOWNLINK PERIOD
WN 1,1 → SS 1,6
SECTOR 1
WN 2,1 → SS 2,3, SS 2,6
SECTOR 2
SECTOR 3
WN 4,1 → SS 4,1, SS 4,2
SECTOR 4
S= 1001
S= 0010
S= 1101
S= 1111

FIG. 7


SECTOR 1
SECTOR 2
SECTOR 3
SECTOR 4

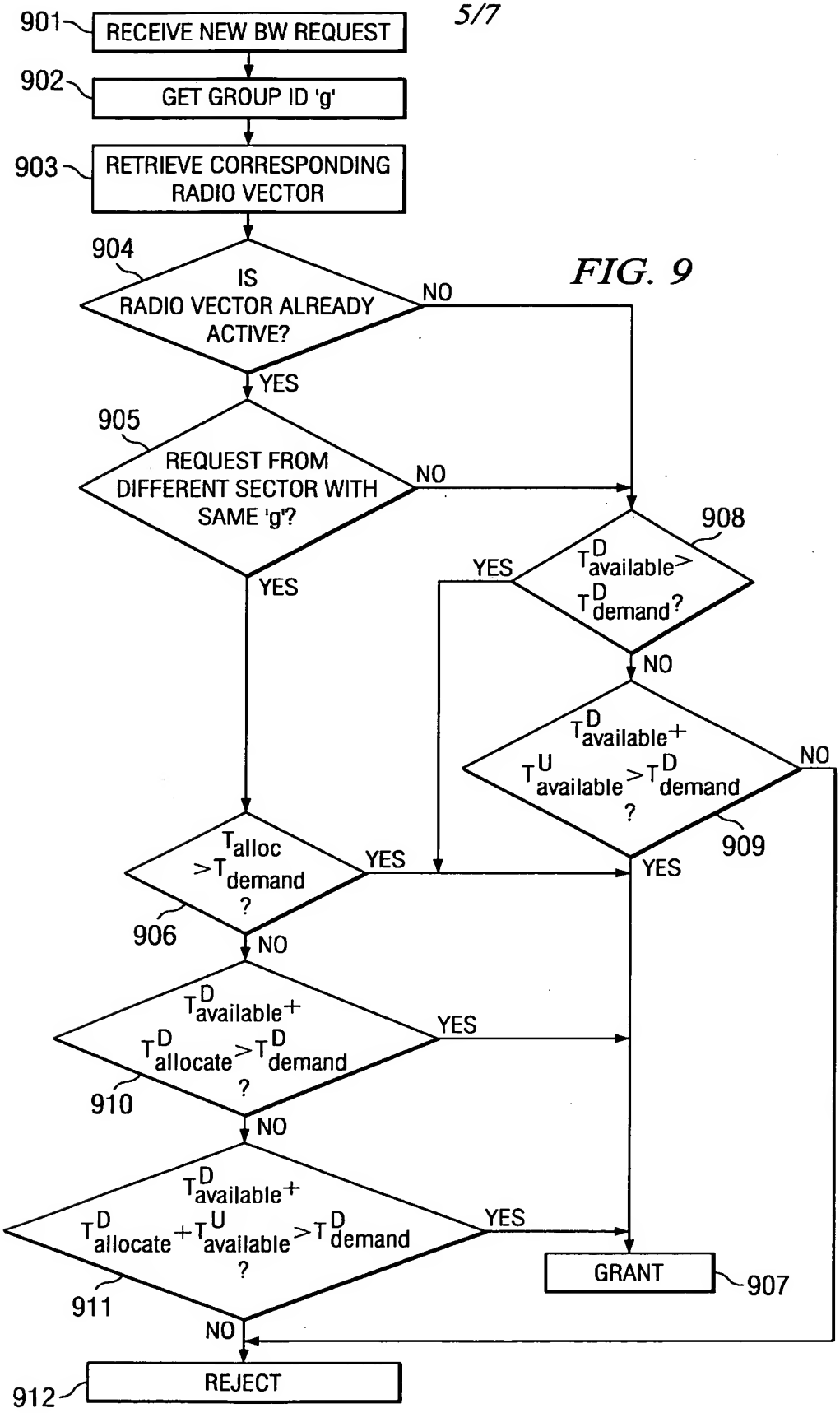

901
RECEIVE NEW BW REQUEST
902
GET GROUP ID 'g'
903
RETRIEVE CORRESPONDING RADIO VECTOR
904
IS RADIO VECTOR ALREADY ACTIVE?
NO
YES
905
REQUEST FROM DIFFERENT SECTOR WITH SAME 'g'?
NO
YES
908
$T^D_{available} > T^D_{demand}$?
YES
NO
$T^D_{available} + T^U_{available} > T^D_{demand}$?
NO
909
YES
$T_{alloc} > T_{demand}$?
YES
906
NO
$T^D_{available} + T^D_{allocate} > T^D_{demand}$?
YES
910
NO
$T^D_{available} + T^D_{allocate} + T^U_{available} > T^D_{demand}$?
YES
911
NO
GRANT
907
REJECT
912

FIG. 9

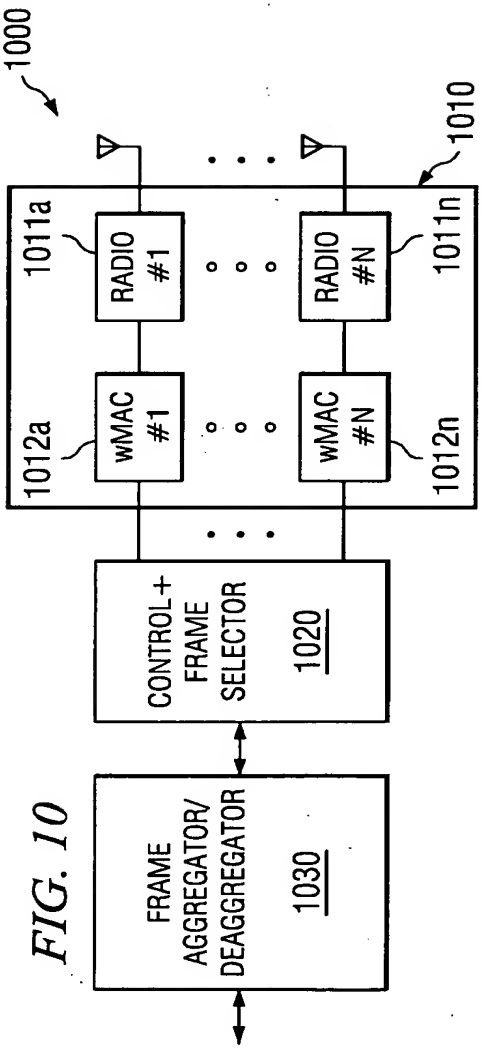

1000
1010
1011a
1011n
RADIO #1
RADIO #N
1012a
1012n
wMAC #1
wMAC #N
CONTROL+ FRAME SELECTOR 1020
FRAME AGGREGATOR/ DEAGGREGATOR 1030

FIG. 10

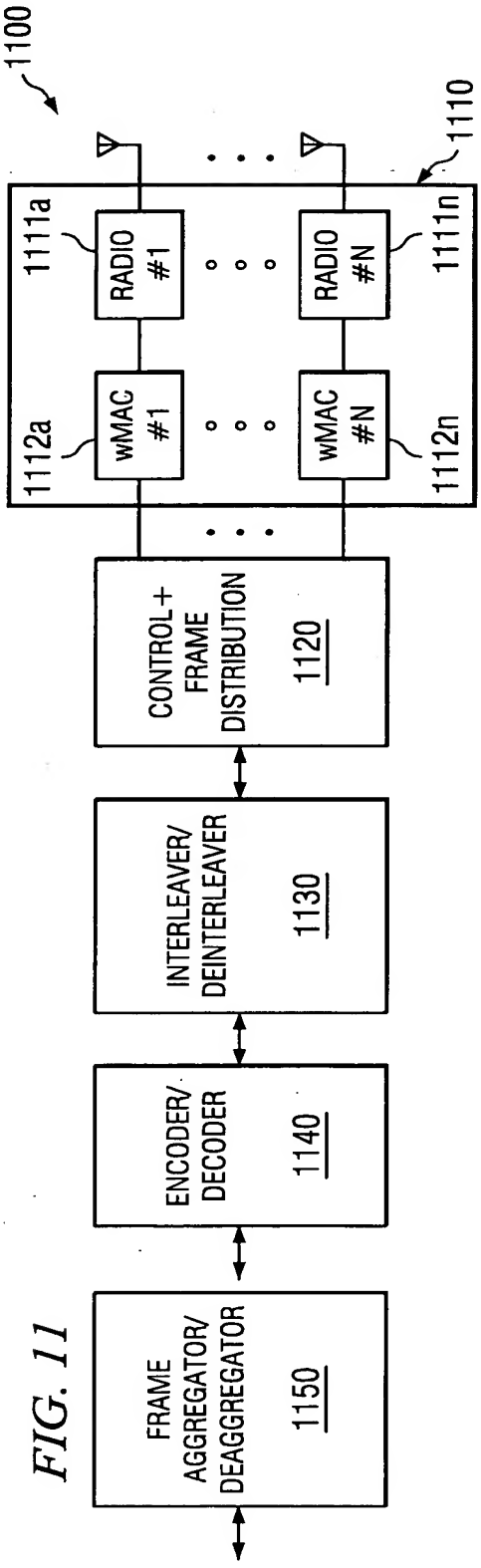

1100
1110
1111a
1111n
RADIO #1
RADIO #N
1112a
1112n
wMAC #1
wMAC #N
CONTROL+ FRAME DISTRIBUTION 1120
INTERLEAVER/ DEINTERLEAVER 1130
ENCODER/ DECODER 1140
FRAME AGGREGATOR/ DEAGGREGATOR 1150

FIG. 11

FIG. 8

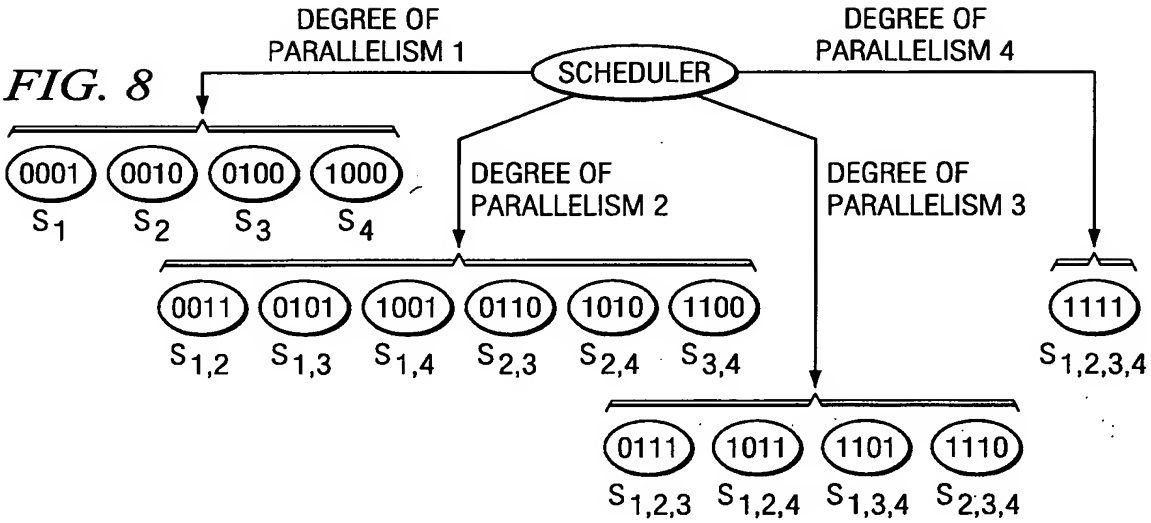
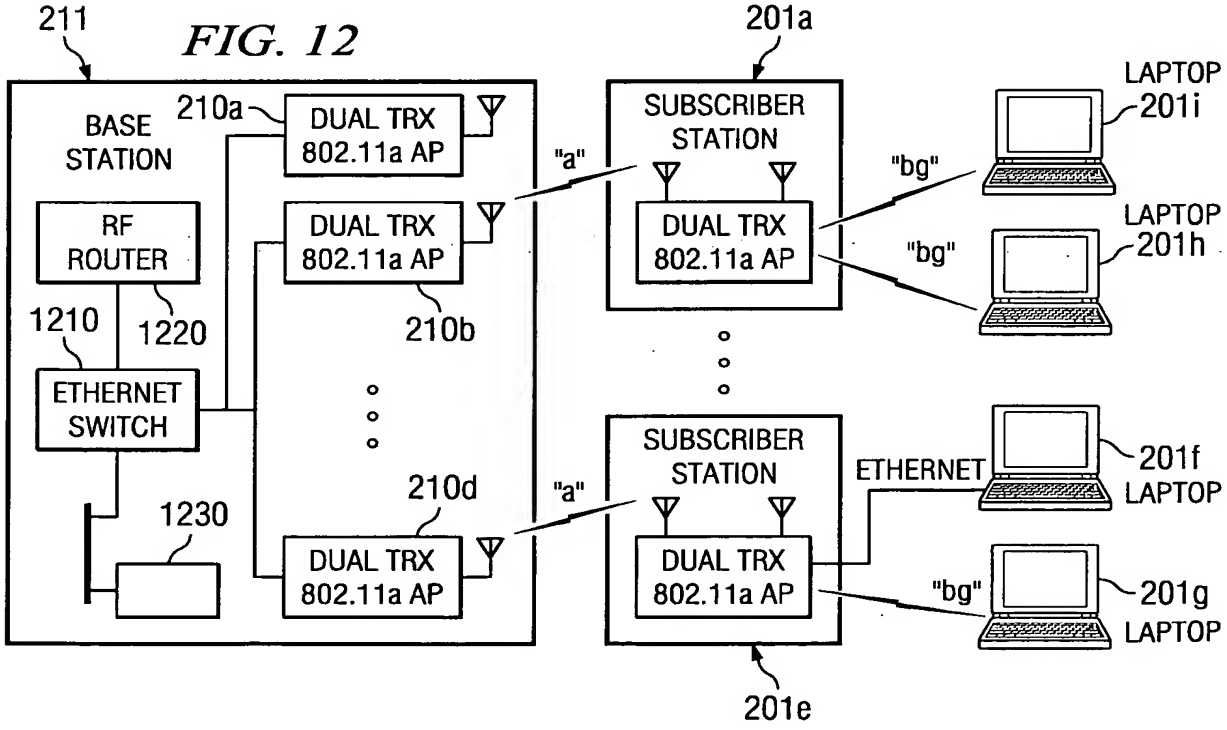

DEGREE OF PARALLELISM 1
SCHEDULER
DEGREE OF PARALLELISM 4
0001
0010
0100
1000
S1
S2
S3
S4
DEGREE OF PARALLELISM 2
DEGREE OF PARALLELISM 3
0011
0101
1001
0110
1010
1100
S1,2
S1,3
S1,4
S2,3
S2,4
S3,4
1111
S1,2,3,4
0111
1011
1101
1110
S1,2,3
S1,2,4
S1,3,4
S2,3,4

FIG. 12


211
201a
BASE STATION
210a
DUAL TRX 802.11a AP
SUBSCRIBER STATION
"a"
"bg"
LAPTOP 201i
RF ROUTER
DUAL TRX 802.11a AP
DUAL TRX 802.11a AP
LAPTOP 201h
1210
1220
210b
ETHERNET SWITCH
SUBSCRIBER STATION
ETHERNET
201f LAPTOP
210d
"a"
1230
DUAL TRX 802.11a AP
DUAL TRX 802.11a AP
"bg"
201g LAPTOP
201e